

Claims

1. A method for a data transmission in a mobile communication system,
5 wherein data is transmitted in data blocks (PDU) from a transmitter (T) to
a plurality of receivers (R1 – RM), said data blocks (PDU) being
identifiable by an identification, wherein the receivers (R1 – RM) send
status indications to the transmitter (T) whether a data block (PDU) is
10 correctly received, and wherein the transmitter (T) is adapted to perform
retransmissions according to the status indications and the transmitter
(T) is provided with a transmission window comprising the transmission
status for the data blocks (PDU) according to their identification, wherein
a synchronization to the transmitter (T) is performed for at least one first
15 of said receivers (Ri) by a synchronization message between the
transmitter (T) and the first receiver (Ri), the synchronization message is
sent to at least a second of said receivers (Ri), wherein a range of
identifications of transmitted data blocks (PDU) is selected in said
synchronization;
20 the first and second receivers (Ri) stop sending status indications for the
data blocks (PDU) corresponding to the selected range of identifications
and the receivers (Ri) send an acknowledgement for the synchronization
message, and the transmitter (T) deletes the transmission status
indications corresponding to the selected range of identifications from the
transmitter window after the acknowledgements are received from a
25 predefined fraction of the receivers (Ri).
2. The method according to claim 1, wherein the synchronization message
(MRW) is sent from the transmitter to all receivers in the plurality.
- 30 3. The method according to claim 1 or 2, wherein the synchronization
message is sent by the first receiver (Ri).

4. The method according to any preceding claim, wherein synchronization events are defined for the transmitter (T) and the first receiver (R₁) and the synchronization is performed at the defined synchronization events.
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5. The method according to any preceding claim, wherein the identifications of the data blocks (PDU) are sequence numbers and the sequence numbers identify the data blocks (PDU) in a modulo numbering scheme.
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6. The method according to any preceding claim, wherein the receivers (R₁ - R_M) have a receiver window comprising identifications of data blocks (PDU), which are not correctly received, the receiver window having at least one edge, and wherein the edge of the receiver window is moved in the synchronization.
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7. The method according to any preceding claim, wherein the transmission window comprises a cumulative transmission status for the identifications of the data blocks, wherein the cumulative transmission status is determined from the status indications sent by the receivers (R₁ - R_M) in said plurality.
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8. The method according to any preceding claim, wherein the status indications from the receivers (R₁ - R_M) cumulatively acknowledge groups of correctly received data blocks.
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9. The method according to any preceding claim, wherein the receivers (R₁ - R_M) indicate the transmission status in a status message (STATUS) and the transmitter requests the status message (STATUS) with a poll message (POLL).
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10. The method according to claim 9, wherein the receivers (R1 - RM) send the status message (STATUS) in reply to the poll message (POLL) with a random delay.

5 11. The method according to any preceding claim, wherein a receiver joins or leaves the data transmission and the transmitter receives a notification of the joining or leaving.

10 12. The method according to any preceding claim, wherein the synchronization message identifies a valid selected range of identifications to a receiver joining the data transmission.

15 13. A transmitter for a mobile communication system, wherein the transmitter is adapted to transmit data blocks (PDU) to a plurality of receivers (R1 - RM), said data blocks (PDU) being identifiable by an identification, and to receive status indications from the receivers (R1 - RM) whether a data block (PDU) is correctly transmitted, and wherein the transmitter (T) is provided with a transmission window comprising the transmission status for the data blocks (PDU) according to their identification, wherein the
20 transmitter (T) is adapted to perform a synchronization with at least one first and second of said receivers (Ri) by a synchronization message between the transmitter (T) and the first and second receiver (Ri), wherein the transmitter is adapted to select a range of identifications of transmitted data blocks (PDU) in said synchronization, and the
25 transmitter (T) is adapted to delete the transmission status for the selected range of identifications from the transmitter window in reply to acknowledgements for the synchronization message sent by the receivers (Ri), and the transmitter (T) is adapted to delete the transmission status indications corresponding to the selected range of
30 identifications from the transmitter window after the acknowledgements are received from a predefined fraction of the receivers (Ri).

14. Program unit loadable into a processing unit of a transmitter for a mobile communication system, wherein the transmitter is adapted to transmit data blocks (PDU) to a plurality of receivers (R1 – RM), said data blocks (PDU) being identifiable by an identification, and to receive status indications from the receivers (R1 – RM) whether a data block (PDU) is correctly transmitted, and wherein the transmitter (T) is provided with a transmission window comprising the transmission status for the data blocks (PDU) according to their identification, wherein the program unit comprises code for performing the steps of

5 initiating a synchronization with at least one first of said receivers (Ri) by a synchronization message between the transmitter (T) and the first receiver (Ri), and to send the synchronization message to at least a second of said receivers (Ri), wherein the receivers (Ri) send an acknowledgement for the synchronization message, and

10 selecting a range of identifications of transmitted data blocks (PDU) in said synchronization, and deleting the transmission status indications for the selected range of identifications from the transmitter window after the acknowledgements are received from a predefined fraction of the receivers (Ri),

15 when executed in the processing unit.

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